RESPIRATORY PROTECTION PROGRAM

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TABLE OF CONTENTS

ARIEL DEVELOPMENT, INC. RESPIRATORY PROTECTION PROGRAM

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1.0 Purpose

Ariel Development, Inc. has determined that certain of its employees are or can be exposed to respiratory hazards as a result of plasma torch cutting of steel tanks. The purpose of this program is to ensure that all employees are protected from exposure to these hazards.

Engineering controls such, as ventilation and substitution of less toxic materials are the first line of defense. However, engineering controls have not always been feasible for some of our operations or have not always completely controlled the identified hazards. In these situations, respirators and other protective equipment must be used. Respirators are also utilized for protection during emergencies.

2.0 Scope and Application

This program applies to all employees who are required to wear respirators during normal work operations and during certain non-routine or emergency operations. Employees participating in the respiratory protection program do so at no cost to them. The expense associated with medical evaluations, training, and respiratory protection equipment will be borne by the company.

Employees who voluntarily choose to use a cartridge style respirator when the respirator is not required are subject to the medical evaluation, cleaning, maintenance and storage elements of this program. These individuals will also receive training covering proper procedures for cleaning, maintenance and storage of their respirators. In addition, the information specified in "Appendix A: Important Information about Voluntary Use of Respirators" will be provided to all voluntary users of respirators.

Employees who voluntarily choose to use a filtering face-piece respirator (i.e., a dust mask style respirator) are excluded from all other requirements of this program.

We are not required to pay for voluntary use of respiratory protection. However, program costs (e.g., medical valuations when a cartridge style respirator is used) are the responsibility of the employer.

3.0 Responsibilities

3.1 Respirator Program Administrator

The Respirator Program Administrator is responsible for overseeing the respiratory protection program and to conduct the required evaluations of program effectiveness thereby ensuring that all the requirements of this program are fully implemented, as necessary.
The person designated as the Program Administrator is

_____.

Duties of the Program Administrator include:

- Identifying work areas, processes or tasks that require workers to wear respirators, and evaluating hazards.
- Selection of respiratory protection options.
- Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
- Arranging for and/or conducting training.
- Ensuring proper storage and maintenance of respiratory protection equipment.
- Conducting qualitative/quantitative fit testing.
- Administering the medical surveillance program.
- Maintaining records required by the program.
- Evaluating the program.
- Updating the written program as necessary to reflect workplace changes that affect respirator use.

3.2 Supervisors

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the supervisor include:

- Ensuring that employees under their supervision (including new hires) have received appropriate training, fit testing, and medical evaluation.
- Ensuring the availability of appropriate respirators and accessories.
- Being aware of tasks requiring the use of respiratory protection.
- Enforcing the proper use of respiratory protection when necessary.
- Ensuring that respirators are properly cleaned, maintained, and stored according to the respiratory protection plan.
- Ensuring that respirators fit well and do not cause discomfort.
- Continually monitoring work areas and operations to identify changes in respiratory hazards.
- Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding the program.

3.3 Employees

Each employee has the responsibility to wear his or her respirator when and where required and in the manner in which they were trained. Employees must also:

- Care for and maintain their respirators as instructed and store them in a clean and sanitary location.
- Inform their supervisor if the respirator no longer fits well and request a new one that fits properly.
- Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.
- Notify their supervisor or the Program Administrator of any other problems associated with using their respirator.

4.0 Respirator Selection

The Program Administrator is responsible to ensure that the respirator selected will be adequate to effectively reduce exposure to the respirator user under all conditions of use including reasonably foreseeable emergency situations.

- For lead work we will issue North 7700 Half face respirators equipped with N-7581 P100 combination Particulate and Organic Vapor replaceable cartridges.

4.1 Evaluating Respiratory Hazards

The Program Administrator will select respirators to be used on-site based on the hazards to which workers are exposed and in accordance with all WISHA standards. The Program Administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. The hazard evaluation will include:

- Identification of respiratory hazard sources and development of a hazardous substance list used in the workplace by location or work process.
- Our project will encounter Lead paint and possibly Arsenic and Cadmium fumes generated during the cutting of tanks, support and other steel.
- Air monitoring will be conducted to determine the airborne presence and quantity of these metals.
- Respiratory protecting will be selected and provided based upon the air sampling results.
- A review of work processes will be conducted to determine where hazardous exposures occur and the magnitude of the exposures. This review will be conducted by surveying the workplace, reviewing process records, obtaining objective data (if available), and talking with employees and supervisors.
- When necessary, exposure monitoring will be conducted to measure potential hazardous exposures. Monitoring will be conducted by Paul W. Jackson & Associates and analysis by NVL laboratories, Inc.
- Airborne levels at or above the following permissible exposure limits indicate inappropriate work practices. Work procedures will be revised as necessary, to reduce airborne values to less than the permissible exposure limits.

  Arsenic @ <10 $\mu g/m^3$
  Cadmium @ <5 $\mu g/m^3$
  Lead @ <50 $\mu g/m^3$

The results of the hazard evaluation are summarized in Table 1.

TABLE 1: HAZARD EVALUATION SUMMARY

Department	Contaminants	Action Level	Permissible Exposure Limit	Work Type	Controls
Demolition	Arsenic	5.0 µg/m3	10.0 µg/m3	Torch Cutting	Ventilation, Respirators
Demolition	Cadmium	2.5 µg/m3	5.0 µg/m3	Torch Cutting	Ventilation Respirators
Demolition	Lead	30.0 µg/m3	50 µg/m3 TWA	Torch Cutting	Ventilation, Respirators

4.2 Hazard Evaluation Update

The Program Administrator is responsible to revise and update the hazard evaluation as needed (i.e., any time work process changes may potentially affect employee exposure). If an employee feels that respiratory protection is needed during a particular activity, she/he is to contact the on-site supervisor.

- The Program Administrator will evaluate the potential hazard. The Program Administrator will then communicate the results of that assessment back to the affected employees. If it is determined that respiratory protection is necessary, all other elements of this program will be in effect for those tasks and this program will be updated accordingly.

4.3 Workplace and User Factors

The Program Administrator will review the job operation, the equipment or tools that will be used, and any motion or travel required which can interfere with the type of respirator to be selected. When powered, air-purifying respirators or continuous-flow airline respirators are used, the physical demands affecting breathing rate will be evaluated.

- The Program Administrator will ensure that respirators selected will not impair the worker's vision, hearing, communication, and physical movement necessary to perform jobs safely.
- Torch set up, physical exertion, ambient temperature, airborne smoke and fumes, fall protection gear and access to the materials to be cut will be evaluated and incorporated into the respiratory program and work plan.
- All employees assigned half-mask or full face respiratory protection may ask to be provided with Powered Air Purifying Respirators at no cost to the employee.
- Respiratory protection will be up-graded, as necessary, to provide protection that exceeds the current Permissible exposure Limits.

4.5 Respirator Selection Table

Respirators have been selected for protection against gases, vapors, and airborne particulates. Respirators are required for all employees engaged in tasks specified in Table 2.

TABLE 2: RESPIRATOR SELECTION	
Respirator	Department/Process
Half-face piece APR[1] or PAPR[2] with P100 filter	Scraping lead-containing paint

4.5 NIOSH Certification

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. All filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while it is in use.

4.6 Assigned Protection Factors

The assigned protection factors in "WAC 296-62-07131, Table 1--Assigned Protection Factors" will be used when selecting respirators. Half-mask respirators can provide adequate protection for routine respirator use, where employee exposures do not exceed ten times the permissible exposure limit. The Program Administrator will determine the type of respirator to be selected for non-routine or reasonably foreseeable emergency situations.

4.7 Contaminant Breakthrough Warning Systems

When applicable, employees using cartridges not equipped with ESLIs must replace cartridges in accordance with the instruction provided by WAC 296-62-07184 Table 3 -- Color Coding of Respirator Filters, Cartridges and Canisters.

For respirators worn exclusively for protection against particles, filters will be changed per the manufacturer's specification and whenever the wearer detects a change in breathing resistance.

4.8 Atmospheres Requiring Highest Level of Protection

For atmospheres that are immediately dangerous to life and health (IDLH), the highest level of respiratory protection and reliability is required. The following respirators will be provided and used: Full-face piece pressure demand self-contained breathing apparatus (SCBA) certified for a minimum service life of thirty minutes, or a combination full-face piece pressure demand supplied-air respirator (SAR) with an auxiliary self-contained air supply.

5.0 Medical Evaluation

Employees assigned to tasks where respirators are utilized must be physically able to perform the work while using the respirator. Accordingly, the company has the responsibility of ensuring that employees are medically fit and able to tolerate the

physical and psychological stress imposed by respirator use, as well as the physical stress originating from job and workplace conditions. Employees will not be allowed to wear respirators until a physician or other licensed health care professional (PLHCP) has determined that they are medically able to do so.

Any employee refusing the medical evaluation cannot work in an area requiring respirator use.

Individuals choosing not to work in areas requiring the use of respirators will be re-assigned to other work, if such work is available. If no alternative work is available, the individual may either accept the work requiring use the respiratory protection or terminate his/her employment with Ariel Development, Inc.

The medical evaluation is designed to identify medical conditions that may place employees who use respirators at risk of serious medical consequences. A licensed health care professional (PLHCP), using the medical questionnaire provided in WAC 296-62-07255 or an initial exam, will determine which medical conditions are relevant to a particular employee's respirator use situation and if/when further follow up is necessary.

Employees voluntarily using filtering face-piece respirators (dust masks) and employees using loose fitting escape-only respirators (provided that is the only respirator used) are exempt from the requirements of the medical evaluation program.

_____(List PLHCP/clinic)_____ will provide initial and any follow-up medical evaluations.

5.1 Information Provided to the PLHCP

The Program Administrator will provide the PLHCP the following general information before evaluations begin:

- A blank "WISHA Respirator Medical Evaluation Questionnaire".
- A copy of this written respiratory protection program including a list of respirators used by the company and a copy of the fit testing procedures used by the company.
- A copy of chapter "296-62 WAC, Part E, Respiratory protection."

In addition, the "Employer Provided Information for Medical Evaluations" form in Appendix B of this written program will be used to compile the necessary user-specific information to be provided to the PLHCP. The user-specific information describes:

- The type and weight of the respirator to be used by the employee.
- The duration and frequency of respirator use (e.g., for routine, rescue and escape tasks).
- The expected physical work effort (e.g., "low", "medium" or "high" as indicated in Appendix B).
- Additional protective clothing and equipment to be worn.
- Estimates of temperature and humidity extremes that may be encountered.
- Any special or hazardous conditions the employee could encounter.

5.2 Medical Questionnaire Administration

Employees assigned to tasks requiring the use of respirators will be required to complete the "WISHA Respirator Medical Evaluation Questionnaire" (Ref.: WAC 296-62-07255, Appendix C). The Program Administrator will make available a copy of the questionnaire to all employees requiring medical evaluations. The medical evaluation will be administered confidentially and during working hours at a place on site that is convenient to employees.

A stamped and addressed envelope for mailing the questionnaire to the PLHCP will be provided. Employees will be paid their normal wages during questionnaire administration.

To the extent feasible for maintaining confidentiality, the Program Administrator or his/her designee will aid employees who are unable to read the questionnaire by providing reading assistance. To ensure confidentiality, the questionnaire will not be subject to review at anytime by the Program Administrator or designee. The Program Administrator or designee will not review completed questions and there will be no employee/employer interaction that could be considered a breach of confidentiality. Where confidentiality cannot be maintained during administration of the questionnaire, the employee will be sent to the PLHCP for medical evaluation.

If needed, employees will have the opportunity to discuss the questionnaire content and/or examination results with the PLHCP via telephone call. During questionnaire administration, the PLHCP's phone number will be given to the employee and access to a phone will be provided at no charge to the employee.

All records from medical evaluations, including completed questionnaires, will remain confidential between the employee and the PLHCP.

5.3 PLHCP's Written Recommendations

Ariel Development, Inc. will be provided a written recommendation from the PLHCP stating whether/or not the employee is medically able to wear a respirator. The recommendation must identify any limitations on the employee's use of the respirator, as well as the need for periodic or future medical evaluations that are required by the PLHCP.

A powered air-purifying respirator (PAPR) will be provided to any employee if information from the PLHCP's written recommendation indicates that the employee can use a PAPR but not a negative pressure respirator. If, subsequent to this evaluation, the PLHCP determines that the employee is able to wear a negative pressure respirator, the company will no longer be required to provide a PAPR to that employee.

The employee will receive a copy of the PLHCP's written recommendations directly from the PLHCP. Information concerning diagnosis, test results, or other confidential medical information will not be disclosed to the company by the PLHCP.

5.4 Additional Medical Evaluations

The company will provide additional medical evaluation or medical re-evaluation for any employee when:

- The employee reports medical signs or symptoms that are related to the employee's ability to use a respirator.
- A PLHCP, supervisor, or the respirator program administrator observes that the employee is having a medical problem during fit testing or workplace respirator use.
- Information from the respiratory protection program, including observations made during fit testing and program evaluation indicates a need for employee re-evaluation.
- A change occurs in workplace conditions (e.g., physical work effort, type of respirator used, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

The content of such additional medical evaluations will be determined by the PLHCP.

6.0 Fit Testing

Fit testing will be required for all respirators with a tight-fitting face-piece. Fit testing will be performed:

- After an employee has completed and received a medical evaluation stating acceptance to wear respiratory protection.
- At the time of initial respirator assignment.
- Whenever a different respirator face-piece is used.
- At least annually thereafter.
- When there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.)

Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find the optimal fit.

Quantitative fit testing of tight-fitting Powered Air Purifying Respirators (PAPR) is to be conducted in negative pressure mode (i.e., with the fan motor turned off).

Quantitative fit testing of tight-fitting airline respirators will be conducted using an identical negative pressure air purifying respirator face-piece as a substitute test mask.

If for any reason an employee finds that the respirator fit is unacceptable, a reasonable opportunity to select a different face-piece and to be retested will be provided.

Employees who voluntarily chose to use air-purifying respirators are not required to be fit tested.

The form in "Appendix C: Respirator Fit Test record" will be used to document respirator fit testing.

6.1 Fit Testing Procedure

Paul W. Jackson will conduct fit testing

Prior to the actual fit test, the employee will be instructed as how to put on a respirator, position it on the face, set strap tension, and determine an acceptable fit. Next, the employee will be allowed to choose a respirator from a sufficient number of models and sizes so that the employee can find a comfortable and correctly fitting respirator. Once an acceptable respirator has been found -- which takes into account the position of the mask on the face, nose, and cheeks, room for eye protection, and room to talk -- a user seal check will be conducted to make sure the respirator is functional and is seated adequately on the user's face before the fit-test can be conducted.

When it has been determined that employee exposures will not exceed airborne concentrations in excess of 10 times the Permissible Exposure Limit (PEL), qualitative fit tests can be conducted on all negative pressure respirators. Where it has been determined that airborne concentrations will exceed 10X the PEL, quantitative fit testing (QNFT) is required for all negative pressure respirators per WAC 296-62-07162 (2).

If conditions affecting exposure levels change, the Program Administrator will evaluate whether quantitative fit testing is required.

Fit testing will be administered by using the WISHA-accepted qualitative fit test protocols found in "WAC 296-62-07201 Appendix A-1: General Fit Testing Requirements for Respiratory Protection and WAC 296-62-07205 Appendix A-2: Qualitative /fit Testing (QLFT) Protocols for Respiratory Protection." The qualitative fit test protocol that will be used at ____(Company name)_____ is the_____(name of QLFT test substance.)___ protocol. A copy of the protocol can be found on ___(specify page number, section number or Appendix)_____ of this written program.

A QLFT involves exposure to a smoke, vapor or mist test agent after it has been determined that the respirator wearer can detect the test agent. During the fit test the wearer performs a series of physical exercises that challenge the fit of the respirator selected. If the presence of the test agent is detected during the test, the respirator fit is considered to be inadequate and the wearer must select another respirator for testing.

There are four QLFT protocols approved in WISHA's standard. The isoamyl acetate (banana oil) is a smell-dependent test while the saccharin and Bitrex™ tests involve exposure to a mist that the respirator wearer tastes. The irritant smoke (stannic chloride) test elicits an involuntary coughing response, if leakage is detected. After determining which fit test protocols you will use, attach a copy of the protocol (i.e., copied from one of the appendices in WAC 296-62-07201-07248) to your written program.

6.2 Fit Testing Exercises

When qualitative fit tests are to be conducted, the Program Administrator will ensure that the test exercises described in WAC 296-62-07203 are performed.

While a fit test is in progress, the respirator must not be adjusted.

Employees will perform fit test exercises in the test environment while wearing other safety equipment that will be worn during actual respirator use that could interfere with respirator fit.

If the employee exhibits breathing difficulty during the fit test, s/he will be referred to the PHLCP to determine whether a respirator can be worn while performing his or her duties.

7.0 Respirator Use

The Program Administrator will monitor the work area in order to be aware of changing conditions where employees are using respirators.

Once the respirator has been properly selected and fitted, it is necessary to ensure that the respirator is used properly in the workplace. The following conditions may compromise the effective use of the respirator and jeopardize worker protection:

- Face piece seal leakage.
- Removing the respirator at the wrong times in hazardous atmospheres.
- Not properly performing user seal checks.
- Not properly repairing defective parts.

In these circumstances, there is the danger that employees may have a false sense of security in feeling that they are protected when they are not.

Employers are required to routinely evaluate workplace conditions, changes in the degree of employee exposure, and changes in physical stress so that additional or different respiratory protection can be provided when necessary. By observing respirator use under actual workplace conditions, employers can note problems such as changes in the fit of a respirator due to the use of other protective equipment or conditions leading to skin irritation.

7.1 Face-piece Seal Protection

Ariel Development, Inc. will not permit respirators with tight-fitting face-pieces to be worn by employees who have conditions that would compromise the face-piece-to-face seal. Examples of these conditions include facial hair (e.g., stubble, bangs) that interferes with the face-piece seal or valve function, absence of normally worn dentures, facial deformities (e.g., scars, deep skin creases, prominent cheekbones), or the use of jewelry or headgear that projects under the face-piece seal.

Corrective glasses or goggles, or other personal protective equipment, must be worn in such a way that they do not interfere with the seal of the face-piece to the face. Full-face-piece respirators will be provided where either corrective glasses or eye protection is required, since corrective lenses can be mounted inside a full-face-

piece respirator. The use of contact lenses with respirators where the wearer has successfully worn such lenses before will be allowed.

A user seal check (also known as a fit check) will be performed every time a tight-fitting respirator is put on or adjusted to ensure proper seating of the respirator to the face. The user seal check conducted must be either the positive and/or negative pressure checks described in "WAC 296-62-07251 Appendix B-1: User Seal Check Procedures," or the manufacturer's recommended procedures when equally protective.

7.2 Monitoring Respirator Effectiveness

The Program Administrator and/or the site supervisor will be responsible to maintain appropriate surveillance of changes in work area conditions that may increase employee exposure or stress.

Employees will be permitted to leave the respirator use area to wash their faces and respirator face-pieces as needed to prevent skin or eye irritation associated with respirator use.

Whenever the respirator user can detect vapor or gas breakthrough (by odor, taste, and/or irritation effects), a change in breathing resistance or leakage of the face-piece, the employee will be allowed to leave the respirator use area to replace the respirator or the filter, cartridge, or canister elements.

Employees will be permitted to leave the respirator use area if they are replacing cartridge or canister elements according to the established replacement schedule or when the end-of-service-life indicator (ESLI) shows that the canister or cartridge(s) must be changed.

Employees will be permitted to leave the respirator use area if the respirator is not properly functioning and must be replaced, repaired, or discarded. The employee will be allowed back into the respirator use area only after the respirator has been replaced or repaired.

Employees will be permitted to leave the respirator use area if the employee experiences severe discomfort in wearing the respirator or if the employee experiences sensations of dizziness, nausea, weakness, breathing difficulty, coughing, sneezing, vomiting, fever, and chills.

7.3 Procedures for Immediately Dangerous to Life and Health (IDLH) Situations

Atmospheres are IDLH when they pose an immediate threat to life, would cause irreversible adverse health effects, or would interfere with an individual's ability to escape from a dangerous atmosphere. Care must be exercised in these situations since failure of the respirator to provide the appropriate protection may result in immediate risk for serious injury or death. Specific work and PPE procedures will be implemented for the use of respirators in IDLH atmospheres that covers entrant monitoring, communication, standby personnel, equipment for rescue, and other requirements as specified in WAC 296-62-07132 and in 07133 (if applicable).

Confined space entry or HAZWOPER activities are subject to job specific respiratory protection and will be made available prior to such time such activities begin.

8.0 Maintenance and Care

The Program Administrator will oversee the maintenance and care program.

8.1 Cleaning and Disinfecting

Respirators will be cleaned and disinfected by the employee using the respirator. Following the procedures outlined in "WAC 296-62-07253 Appendix B-2: Respirator Cleaning Procedures." The respirator manufacturer's cleaning procedures may be used if they are equivalent in effectiveness as Appendix B-2.

Respirators will be cleaned and disinfected as follows:

- Respirators that are issued for the exclusive use of an employee will be cleaned and disinfected as often as necessary to be maintained in a sanitary condition. Employees will be responsible to clean and disinfect respirators issued for their exclusive use.

- Respirators used by more than one employee will be cleaned and disinfected prior to being used by a different individual.

- Respirators maintained for emergency use as well as respirators used in fit testing and training will be cleaned and disinfected after each use.

- During fit-tests, disinfectant wipes can be used in between respirator wears to minimize the risk for spreading cold, influenza or other respiratory illness. Note: The person cleaning respirators with disinfectant wipes must be so trained. At the end of the day, each respirator will be completely disassembled and cleaned by immersion.

8.2 Storage

Respirators will be stored so that they are protected against damage, contamination, dust, sunlight, temperature extremes, excessive moisture, and damaging chemicals. When respirators are packed or stored, the face-piece and exhalation valve will be stored in a manner that prevents deformation. Each respirator should be positioned so that it retains its natural configuration.

The Program Administrator is responsible to ensure that respirators intended for emergency use will be kept accessible to the work area. Emergency use respirators will not be kept in any area that might itself be involved in the emergency because such an area may become contaminated or inaccessible. Emergency use respirators will be stored in compartments or covers that are clearly marked to indicate that they contain emergency respirators and stored according to any applicable manufacturer instructions.

8.3 Inspection

Respirators used in routine situations will be inspected before each use and during cleaning.

Respirators designated for use in an emergency situation will be inspected at least monthly and in accordance with the manufacturer's instructions and checked for proper function before and after each use. Emergency escape-only respirators must be inspected before being carried into the workplace. Self-contained breathing apparatus (SCBA) will be inspected monthly and after each use.

Respirator inspections will include a check of respirator function, tightness of connections, and the condition of the various parts including but not limited to: The face-piece, head straps, valves, connecting tube, and cartridges, canisters, or filters. In addition, the elastomeric parts must be evaluated for pliability and signs of deterioration.

8.4 Repair

The Program Administrator or designee will ensure that respirators that fail to pass inspection or are otherwise found to be defective will be removed from service and repaired or adjusted properly. If a respirator cannot be repaired or adjusted, it will be discarded.

Repairs or adjustments to respirators will be done by the respirator user. In the event of difficulty, the supervisor will assist in correcting the respirator deficiencies.

Only NIOSH-approved manufacturer's replacement parts designed for that respirator will be used. Repairs will be made in accordance with the manufacturer's recommendations and specifications regarding the type and extent of repairs to be performed.

9.0 Breathing Air Quality

The Program Administrator will ensure that breathing air for atmosphere-supplying respirators will be of high purity, meets quality levels for content, and does not exceed certain contaminant levels and moisture requirements.

Compressed air, compressed oxygen, liquid air, and liquid oxygen used for respiration must be in accordance with the specifications found in WAC 296-62-07182(2).

Only Grade D breathing air will be provided in cylinders supplying respirator-breathing air. The Program Administrator or designee will verify that cylinder supplied air meets the specifications of Grade D breathing air. Moisture content in the cylinders will not exceed a dew point of –50° F (-45.6° C) at 1 atmosphere pressure. Note: This requirement will prevent respirator valves from freezing, which can occur when excess moisture accumulates on the valves. All breathing gas containers must be marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84.

The Program Administrator will maintain a minimum air supply of one fully charged replacement cylinder for each SAR unit.

9.1 Compressors

Compressors used for supplying breathing air must be constructed and situated so contaminated air cannot enter the air-supply system. The location of the air intake will be in an uncontaminated area where exhaust gases from nearby vehicles, the internal combustion engine that is powering the compressor itself (if applicable), or other exhaust contaminants being ventilated will not be picked up by the compressor air intake.

Compressors will be equipped with suitable in-line, air-purifying sorbent beds and filters to further ensure breathing air quality and to minimize moisture content so that the dew point at 1 atmosphere pressure is 10°F (5.56°C) below the ambient temperature. Sorbent beds and filters will be maintained and replaced or refurbished periodically according to the manufacturer's recommendations. An inspection tag will be kept at the compressor indicating the most recent change date and the signature of the Program Administrator or designee authorized to perform the maintenance.

The Program Administrator will ensure that the compressor intake will not allow the introduction of carbon monoxide greater than 10 parts per million (ppm) into the system. Note: This could be from sources other than the compressor such as forklifts/vehicles or other gas powered equipment. Where this is not possible or feasible, it may be necessary to combine the use of a carbon monoxide alarm with a carbon monoxide sorbent bed when conditions are such that a reliable carbon monoxide-free area for air intake cannot be found.

For oil-lubricated compressors, you must use a high-temperature or carbon monoxide (CO) alarm, or both, to monitor CO levels. If only high-temperature alarms are used, the air supply must be monitored at intervals sufficient to make sure the concentration of CO in the breathing air does not exceed 10 ppm.

Breathing air couplings must be incompatible with outlets for non-respirable plant air or other gas systems to prevent accidental servicing of airline respirators with non-respirable gases or oxygen. No asphyxiating substance (e.g., nitrogen) will be allowed in the breathing airlines.

10.0 Identification of Filters, Cartridges and Canisters

The Program Administer will ensure that all filters, cartridges, and canisters used in the workplace are labeled and color-coded with the NIOSH approval label, and ensure that the label is not removed and remains legible. "WAC 296-62-07184 Table 3 -- Color Coding of Respirator Filters, Cartridges and Canisters" provides color-coding information.

11.0 Training and Information

Either the program director of the on-site supervisor will provide training to respirator users on the contents of the company's Respiratory Protection Program and their responsibilities under it, and on the WISHA respiratory protection standard.

Employees will be trained prior to using a respirator in the workplace. Supervisors will be trained prior to using a respirator in the workplace or prior to supervising employees who wear respirators.

Employees who voluntarily use filtering face piece (dust mask) respirators are exempt from the training requirements. Voluntary users of elastomeric air-purifying respirators will receive limited training regarding cleaning and storage.

The information specified in "Appendix A, Important Information about Voluntary Use of Respirators" will be provided all voluntary users of respirators

11.1 Respiratory Protection Training Guideline

The Respiratory Protection Training course materials will cover the following information:

- Information regarding the consequences of improper fit, usage, or maintenance on respirator effectiveness will be provided to employees. Inadequate attention to any of these program elements would obviously defeat the effectiveness of the respirator. Proper fit, usage, and maintenance of respirators are critical to ensure employee protection.

- Employees will be provided an explanation of the limitations and capabilities of the respirator selected for employee use. A discussion of the limitations and capabilities of the respirator will address how the respirator operates. Training will include an explanation of how the respirator provides protection by either filtering the air, absorbing the vapor or gas, or providing clean air from an uncontaminated source, as applicable. Training will include limitations on the use of the equipment such as prohibitions against using an air-purifying respirator in IDLH atmospheres and an explanation of why such a respirator must not be used in these situations.

- Employees will be provided an explanation to understand how to use the respirator effectively in emergency situations including those in which the respirator malfunctions. Comprehensive training will be provided where respirators are used in IDLH situations including oxygen-deficient atmospheres such as those that occur in rescue operations.

- Training will include the procedures for inspecting the respirator, donning and removing it, checking the fit and respirator seal, and actually wearing the respirator. Employees will be capable of recognizing any problems that may threaten the continued protective capability of the respirator. The training will include the steps employees are to follow if they discover any problems during inspection, that is, which the problems are to be reported to and where they can obtain replacement equipment if necessary.

- Instructions will be given to respirator users regarding the proper procedures for maintenance and storage of respirators.

- Employees will be provided with medical information that is sufficient for them to recognize the signs and symptoms of medical conditions (e.g., shortness of breath, dizziness) that may limit or prevent the effective use of respirators.

- Employees will be informed of the general requirements of the WISHA respiratory protection standard. This discussion will inform employees that employers are obligated to develop a written program, properly select respirators, evaluate respirator use and correct deficiencies in use, conduct medical evaluations, provide for the maintenance, storage, and cleaning of respirators, and retain and provide access to specific records.

Employees will demonstrate their understanding of the information covered in the training through hands-on exercises and a written test. The Program Administrator will document respirator training and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested. The form in "Appendix D: Respirator Training Record" will be used to document employee training.

11.2 Frequency of Training

- New employees will be provided respirator training prior to using a respirator in the workplace.

- Employees will be retrained annually and more often as needed (e.g., if they change area/location/position and need to use a different respirator).

- Retraining will occur if the Program Administrator or Supervisor determines that any employee has not retained or demonstrated the knowledge, understanding, or skill level required by the company's training program

12.0 Program Evaluation

The Program Administrator is responsible to conduct evaluations of the workplace, as necessary. Periodic program evaluation is required to ensure that the provisions of the respiratory protection program are being implemented for all employees using respirators. In addition, evaluations will be conducted to ensure the continued effectiveness of the program. Evaluations of the workplace will determine whether the correct respirators are being used and worn properly and will also serve to determine whether the training program is effective.

Supervisors are responsible to periodically monitor employee use of respirators to ensure that they are being used and worn properly.

The Program Administrator will regularly consult with employees wearing respirators to ascertain the employees' views on program effectiveness and to identify any problems so that corrective action can be taken.

The following factors will be evaluated to determine program effectiveness:

- Respirators are properly fitted and if employees are able to wear respirators without interfering with effective workplace performance.
- Respirators are correctly selected for the hazards encountered.
- Respirators are used properly depending on the workplace conditions encountered.
- Respirators are being maintained and stored properly.

The Program Administrator will be responsible to correct any problems associated with wearing a respirator that are identified by employees or that are revealed during any other part of this evaluation.

13.0 Record keeping

The Program Administrator will retain a copy of the PLHCP's written recommendation for each employee subject to medical evaluation. Each employee's completed medical questionnaire, results of relevant medical tests, examinations, and diagnosis, etc., will be maintained by the PHLCP for a period of 30 years after the last day of employment.

Records of medical evaluations will be made available as specified in Chapter 296-62 WAC, Part B, WISHA's Access to Records rule.

The Program Administrator will retain fit test records for respirator users until the next fit test is administered. These records consist of:

- Name or identification of the employee tested:
- Type of fit test performed (Qualative Fit Test (irritant smoke) Quantative Fit test.
- Make, model, and size of the respirator
- Name or identification of the employee tested;
- Pass/fail results if a QLFT is used; or
- Fit factor and strip chart recording or other record of the test results if quantitative fit testing was performed.

The form in "Appendix C: Respirator Fit Test Record" will be used to document employee fit testing.

The Program Administrator will retain employee training records that include the names of employees trained and the dates when training was conducted.

The Program Administrator will keep a current copy of Ariel Development, Inc. written respiratory protection program in the work site field office. All written materials required to be maintained under the record-keeping requirements will be made available, upon request, to the employee who is subject of the records and to the director or the director's designee of the Washington State Department of Labor and Industries for examination and copying.

Appendix B: Employer Provided Information for PLHCP

The written respirator program, a copy of Chapter 296-62 WAC, Part E and user-specific information will be provided by the company to the PLCHP/Clinic) using the following form titled, "Employer Provided Information for Medical Evaluations":

Ariel Development, Inc. provided Information for Medical Evaluations

WAC 296-62-07152 requires that certain information regarding respirator use must be provided by the employer to the physician or licensed health care provider (PLHCP).

The following general information will be provided to the PLHCP:

- A copy of our written respiratory protection program;
- A copy of chapter 296-62 WAC, Part E, Respiratory protection.

In addition, certain respirator user specific information will be provided.

This form may be used by the employer to provide the respirator user specific information to the PLHCP, but is not a required form.

Ariel Development, Inc.
1046 1st Avenue South, South Seattle, WA 98134

APPENDIX C: Respirator Fit Test Record

Name: _____ Initials: _____

Type of qualitative/quantitative fit test used: _____

Name of test operator: _____ Initials: _____

Date: _____

RESPIRATOR MFR./MODEL/APPROVAL NO	SIZE	PASS/FAIL
1. _____	S M L	P F
2. _____	S M L	P F
3. _____	S M L	P F
4. _____	S M L	P F

NOTES: _____

_____

_____

_____

This record indicates that you have passed or failed a qualitative or quantitative fit test as shown above for the particular respirator(s) shown. Other types will not be used until fit tested.

Ariel Development, Inc.
1046 1st Avenue South, South Seattle, WA 98134

APPENDIX D: Respirator Training Record

_____ Employee Name (printed)

I certify that I have been trained in the use of the following:

This training included the inspection procedures, fitting, maintenance and limitations of the above respirator(s). I understand how the respirator operates and provides protection. I further certify that I have heard the explanation of the unit(s) as described above and I understand the instructions relevant to use, cleaning, disinfecting and the limitations of the unit(s).

_____
Employee Signature

_____
Instructor Signature

_____
Date

Appendix E: Glossary

Air-purifying respirator a respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.

Assigned protection factor (APF) the expected level of workplace protection provided by a properly functioning respirator worn by properly fitted and trained individuals. It describes the ratio of the ambient concentration of an airborne substance to the concentration of the substance inside the respirator.

Atmosphere-supplying respirator a respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SAR's) and self-contained breathing apparatus (SCBA) units.

Canister or cartridge a container with a filter, sorbent, or catalyst, or a combination of these items that removes specific contaminants from the air passed through the container.

Emergency situation any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled substantial release of an airborne contaminant.

Employee exposure an exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.

End-of-service-life indicator (ESLI) a system that warns the respirator user of the approach of the end of adequate respiratory protection; for example, that the sorbent is approaching saturation or is no longer effective.

Escape-only respirator a respirator intended to be used only for emergency exit.

Filtering face piece (dust mask) a negative pressure particulate respirator with a filter as an integral part of the face piece or with the entire face piece composed of the filtering medium.

Filter or air-purifying element a component used in respirators to remove solid or liquid aerosols from the inspired air.

Fit factor a quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.

Fit test the use of a protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. See also "Qualitative fit test (QLFT)" and "Quantitative fit test (QNFT)."

Helmet a rigid respiratory inlet covering that also provides head protection against impact and penetration.

High efficiency particulate air (HEPA) filter a filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter and larger. The equivalent NIOSH 42 CFR part 84 particulate filters are the N100, R100, and P100 filters.

Hood a respiratory inlet covering that completely covers the head and neck, and may also cover portions of the shoulders and torso.

Immediately dangerous to life or health (IDLH) an atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.

Loose-fitting face piece a respiratory inlet covering that is designed to form a partial seal with the face.

Negative pressure respirator (tight fitting) a respirator in which the air pressure inside the face piece is negative during inhalation with respect to the ambient air pressure outside the respirator.

Oxygen deficient atmosphere an atmosphere with oxygen content below 19.5% by volume.

Physician or other licensed health care professional (PLHCP) an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by WAC 296-62-07150, "Medical evaluation." In Washington State, physicians (MD or DO), physician's assistants (PA) or nurse practitioners (ARNP) qualify to be designated as a PLHCP.

Positive-pressure a respirator in which the pressure inside the respiratory inlet covering exceeds the ambient air pressure outside the respirator.

Powered air-purifying respirator (PAPR) an air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.

Pressure demand respirator a positive pressure atmosphere-supplying respirator that admits breathing air to the face piece when the positive pressure is reduced inside the face piece by inhalation.

Qualitative fit test (QLFT) a pass/fail fit test to assess the adequacy of respiratory fit that relies on the individual's response to the test agent.

Quantitative fit test (QNFT) an assessment of the adequacy of respirator fit by numerically measuring the amount of leakage into the respirator.

Respiratory inlet covering the portion of a respirator that forms the protective barrier between the user's respiratory tract and an air-purifying device or breathing air source, or both. It may be a face piece, helmet, hood, suit, or a mouthpiece respirator with nose clamp.

Self-contained breathing apparatus (SCBA) an atmosphere-supplying respirator for which the breathing air source is designed to be carried by the user.

Service life the period of time that a respirator, filter or sorbent or other respiratory equipment provides adequate protection to the wearer.

Supplied-air respirator (SAR) or airline respirator an atmosphere-supplying respirator for which the source of breathing air is not designed to be carried by the user.

Tight-fitting face piece a respiratory inlet covering that forms a complete seal with the face.

User seal check an action conducted by the respirator user to determine if the respirator is properly seated to the face.